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ABSTRACT

This report of a World Health Organization (WHO) expert committee examines the planning of medical education programs. Guidelines are given to assist the decision making and policy planning of medical education so that schools may meet the health needs of the community. Guidelines suggest: (1) The determination of major health problems and needs should be based on: (a) the health profile of the society to be served and priorities arrived at on the basis of prevalence, severity, and controlability of the health problems, and (b) the health problems and needs as perceived by the society itself. (2) An optimum of choice of the services to be provided should be made by the appropriate authorities. (3) The types and extent of services to be provided should be used to determine the health manpower policy. (4) Decisions about present and future medical school policy should be made on the basis of consultations with, and data supplied by, appropriate representatives of the university, the medical school, the practicing professions, the ministries of health, education, finance, and planning and the society to be served. (5) Through the process of task analysis, job descriptions for those provide these services are next developed. (6) On the basis of these job descriptions, statements of the educational objectives should be elaborated. Additional guidelines are presented. (MJM)

This report contains the collective views of an international group of experts and does not necessarily represent the decisions or the stated policy of the World Health Organization.

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THE PLANNING OF MEDICAL EDUCATION PROGRAMMES

Report of a WHO Expert Committee

WORLD HEALTH ORGANIZATION
GENEVA
1974

The World Health Organization (WHO) is one of the specialized agencies in relationship with the United Nations. Through this organization, which came into being in 1948, the public health and medical professions of more than 130 countries exchange their knowledge and experience and collaborate in an effort to achieve the highest possible level of health throughout the world. WHO is concerned primarily with problems that individual countries or territories cannot solve with their own resources—for example, the eradication or control of malaria, schistosomiasis, smallpox, and other communicable diseases, as well as some cardiovascular diseases and cancer. Progress towards better health throughout the world also demands international cooperation in many other activities: for example, setting up international standards for biological substances, for pesticides, and for pesticide spraying equipment; compiling an international pharmacopoeia; drawing up and administering the International Health Regulations; revising the international lists of diseases and causes of death; assembling and disseminating epidemiological information; recommending nonproprietary names for drugs; and promoting the exchange of scientific knowledge. In many parts of the world there is need for improvement in maternal and child health, nutrition, nursing, mental health, dental health, social and occupational health, environmental health, public health administration, professional education and training, and health education of the public. Thus a large share of the Organization's resources is devoted to giving assistance and advice in these fields and to making available—often through publications—the latest information on these subjects. Since 1958 an extensive international programme of collaborative research and research coordination has added substantially to knowledge in many fields of medicine and public health. This programme is constantly developing and its many facets are reflected in WHO publications.

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THE PLANNING OF MEDICAL EDUCATION PROGRAMMES

Report of a WHO Expert Committee

INTRODUCTION

A WHO Expert Committee on The Planning of Medical Education Programmes met in Geneva from 10 to 14 September 1973. Dr W. H. Chang, Assistant Director-General, opened the meeting on behalf of the Director-General. After welcoming the members of the Committee, he pointed out that WHO had already convened a number of expert groups to discuss the various aspects of medical education, including a Study Group on Internationally Acceptable Minimum Standards of Medical Education which met in 1961.[1] In addition, it is proposed to hold a meeting in 1974 to discuss the planning of schools of medicine. It was expected that the general guidelines formulated by the meeting would be useful both to those responsible for setting up new medical schools (often in geographic areas lacking adequate health services) and to those responsible for established medical schools, particularly when changes in the educational programme were being contemplated.

In formulating guidelines for medical education the Committee was asked to consider the following items:

1. Identification of factors that should influence medical education policy.

2. Definition of the role of the medical school graduate;

3. Formulation of medical school policy on the basis of (*a*) national health policy; (*b*) economic determinants; (*c*) academic determinants; and (*d*) community involvement.

A questionnaire designed to gather information on these items had been sent to Committee members before the meeting and their replies served as a starting point for the discussions.

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1962, No. 239.

1. IDENTIFICATION OF FACTORS THAT SHOULD INFLUENCE MEDICAL EDUCATION POLICY

1.1 Health profiles [1] and possible worldwide standards

In order to limit the scope of the discussions on this very broad topic, it was agreed that, while medical education was in many respects inseparable from education for other health care professions, this report should be concerned almost exclusively with medical education, i. e., with the preparation of the physician. While there are many references to other members of the "health-care team" they were considered only in relation to the training and/or education of the physician.

In a strict sense, standards of medical education might be expected to relate to levels of performance or expertise. The Committee agreed, however, that the formulation of international standards of this kind—or even of guidelines for their development—would be inappropriate. On the other hand, it is quite feasible to establish broad objectives for medical education and to make generalizations about educational policies for the guidance of planning groups. The Committee's discussions were therefore directed to the development of standards of this type.

It is evident that medical education must be relevant to the needs of the society in which it exists. Health needs are changing rapidly in many societies and medical education policy must be responsive to changing needs.

In any nation or society there is essentially "an epidemiological basis" for medical education. Mortality, morbidity, other health patterns and profiles, and epidemiology in general are all now much more amenable to measurement. Thus, data concerning health patterns and delivery of health care can be confidently utilized in the definition of broad goals of medical education and in the design of the educational programme itself. On the basis of such broad goals, schools and departments can (and should) define their student-oriented learning objectives. Accurate definition of educational objectives [2] is important to the success of any educational programme, but it would be beyond the scope of this report to enter into details of this process.

[1] For the purpose of these discussions, the health profile of a country was defined as all the elements that indicate the health status of a population as well as the various means used for the delivery and evaluation of health care.

[2] For the purpose of these discussions, educational objectives are explicit statements of what the student is expected to be able to do as a consequence of a period of learning; they should include criteria to permit an evaluation of the student's knowledge, attitudes, and skills

In setting goals of medical education the suggestion is often made that learning experiences should be directed more toward preparing students to solve health problems. This suggestion is sometimes criticized on the grounds that those desiring the change are interested only in preparing a "technician", i.e., one who will no longer have a grounding in the sciences or be interested in a life of scholarship and study. The critics often argue that there are essentially two types of school: one that is devoted to teaching only skills and techniques and virtually no science, and the other in which the emphasis is on science and techniques are practically ignored, on the assumption that they can be learned later in postgraduate training. In reality, medicine is a profession that requires a balanced education; in other words, a medical school is a professional school in which students should learn both the sciences and a set of professional skills through which to apply those sciences to the solution of health problems.

The existing structure of health services is another source of data for rational educational planning. Both the structure and the function of health services must be considered and the student should be expected to study these carefully and be prepared both to participate in that "system" of delivery of health care (in his proper role) and to study and modify the system as needed. Ultimately, as a physician, he will be expected to supervise and evaluate the delivery of health care as well as be a direct provider of care. Thus, a medical education policy should be such that it also promotes the search for improvement of health care delivery.

1.2 Health authorities and academic freedom

It was clear to the Committee that the power structure within the health services would differ from one situation to another and that the relationships between governments and other responsible agencies on the one hand and those responsible for health care and or medical education on the other would also vary widely. Generalizations regarding these relationships would be of such a broad nature as to be of little use. However, whatever the power relationships the government (and or other responsible agencies) will require certain information on which to base national policy.

Since, as already observed, medical education must be closely geared to the health problems of the society it seeks to serve, the medical school must have the staff and resources to conduct adequate research in epidemiology, economics, and existing health care practices in order to provide the government with the information needed to define a policy for medical education. Such research should be free of political pressures. Academic freedom is essential if the data thus generated are to be of maximum use to the government. This freedom, on the other hand, carries with it the

duty for academic faculties to engage in evaluation of health care and its potential benefits. As long as the research is related to community needs, the government may be expected to provide support and guarantee academic freedom.

Planning should reflect the needs of both the government and the educators. To the medical educators it often seems that there is an apparent lack of appreciation of the problems besetting a medical faculty when a government "demand" for more physicians is made. Conversely, and of equal importance, it often appears to the government that medical faculties are preoccupied with "academic excellence" and "standards" while seemingly ignoring unmet needs in the delivery of health care in the very society served by the school. It is obvious that a large measure of mutual confidence is essential. Dialogue between government and education authorities must begin at once and be maintained even after the establishment of good communication and understanding.

1.3 Medical education policy and changing needs in health care

Population growth, changes in the age structure of the population and in morbidity/mortality patterns, a progressive increase in the complexity of medical technology, modifications in the system of delivery of health care, are among the variables that are constantly influencing health manpower needs in any country. Those responsible for medical education should be constantly aware of changes in these factors and of how they affect health manpower needs. Unfortunately, the methodology for projecting health manpower needs is still rather poorly developed, particularly with reference to determining needs for specialists in the various fields of medicine.

A better approach seems to be that of starting with a description of the health services to be provided. Then in the light of known needs and available resources, one can define the composition of the health team required to provide those services. It is possible—in a given situation—that the need for more physicians may decrease with an increased delegation of selected functions to other types of health personnel, who might be of particular benefit in providing primary ("first contact") care in remote or poorly serviced areas. They might also assist busy physicians in urban areas, keeping constantly in touch with them by telephone. Careful experimentation and innovation in systems of delivery of health care, if evaluated and found successful, might produce changes in the needs for physicians. In that event, the continued production of certain types of specialists at current rates could lead to imbalance. For this reason, constant scrutiny of existing projections is necessary.

A careful observation of the health manpower situation in many countries reveals large variations in the composition of the health team and in its distribution throughout the country. The methods available for health manpower planning still leave much to be desired, but in spite of these limitations, some countries with centrally planned economies, and in which the apparatus for manpower production is under the same direction as is the health system, have succeeded in achieving a good distribution of the physician manpower among specialties. In the majority of the countries, however, the problem of maldistribution of physicians, geographically and among specialties, is a serious one.

Geographical maldistribution is a problem that is more easily identified than corrected. For example, medical care for sparsely settled rural areas of developing countries is almost non-existent. Even in more densely populated areas, physician services may be unavailable. This aspect of maldistribution occurs for many reasons, among which are unattractive living conditions for potentially available physicians, lack of resources in the public sector to provide an adequate remuneration for the services of potentially available physicians, or distance (social as well as geographic) from facilities for secondary and tertiary care.[1]

Maldistribution of physicians practising in various specialized fields and providing primary care [1] is a common problem. The more glamorous, lucrative or prestigious specialties attract an excessive number of candidates, whereas areas of great social interest, such as geriatrics, preventive medicine, adolescent services, mental health, and family practice, have not been attracting enough candidates.

Although some of the causes of this kind of maldistribution can be solved only by actions and changes that transcend the health system, there are others that are internal to it and for which corrective mechanisms could be established as part of a comprehensive medical education policy.

(a) *Selection, counselling, and career guidance.* This applies both to candidates about to enter medical schools and to students choosing a career path during their medical course. Candidates not admitted to medical schools or students who fail at some point in their medical training may be oriented

[1] For the purpose of these discussions, the terms primary, secondary and tertiary medical care were understood to have the following meanings: *primary medical care*: front line medical care; as a rule not limited to patients with specific diseases within specific age-groups (this is the field of practice where the patient usually makes his first contact with the physician, and has direct access to him: *Wld Hlth Org. techn. Rep. Ser.*, 1964, No. 267, p. 4); *secondary medical care*: care requiring attention of a special nature, usually more sophisticated and complicated than could be handled by the general practitioner; *tertiary medical care*: care requiring highly specialized attention, and which can usually only be provided in centres specially designed for this purpose and by physicians trained in the area of specialization.

to other health careers. Successful students in their later years in medical school may be assisted in their career choice with sound information about community needs and career opportunities in the various fields of medicine.

(b) *Modification of faculty attitudes and behaviour.* One commonly identified problem is the lack of medical faculty interest in general (family) practice [1] In some places more than 90% of medical students indicate that they want to become specialists. This may be due partly to the systems of rewards offered later in practice, but also partly to unfavourable faculty attitudes towards general or family practice. If this mode of practice is to be encouraged, physicians in general or family practice should be represented on the faculty in positions of the same importance as other specialists, thus providing a model for students to emulate.

(c) *Provision of economic incentives.* Rewards must be sought for those entering career paths of greater interest to society (e.g., practising for a period of time in a rural area or another area in which health care is inadequate) Such rewards may be of a direct economic nature ; they may, however, be in the form of credits for career advancement or of opportunities for postgraduate studies. The goal, of course, is to encourage students to study (and practise) in areas of greater social need and at the same time to discourage the tendency towards overspecialization.

(d) *Discouraging students from entering overcrowded specialties.* Conversely, added difficulties may be place in the way of entrance into postgraduate training in specialties already overcrowded. Furthermore, creating stimulating learning experiences in those fields where social needs are greatest can help to influence career choices in favour of these specialties. Just as studies in these fields should be accorded the same status as those of the traditionally more important specialties, they should also be adequately represented among the examination questions for promotion, certification, and or licensing.

(e) *Motivation by relevant learning experiences.* Rural health work and preventive and community medicine may be perceived as dull experiences if they are forced upon the student as compulsory activities outside the context in which he is pursuing his career interests. However, if these activities are made an integral part of the actual clinical learning, the situation may be changed. Community medicine should become a total

[1] *The family physician* offers to all the members of a family h is serving a direct and continuing access to his services. Family physicians are usually general practitioners but may also be internists (*Wld Hlth Org. techn. Rep. Ser.*, 1963, No. 257, p. 6). *The general practitioner* is a physician who does not limit his practice to certain disease entities and who offers his patients direct and continuing access to his services (*Wld Hlth Org. techn. Rep. Ser.*, 1963, No. 257, p. 6).

faculty commitment in which other clinical departments besides the department of preventive or social medicine should participate.

Students learn through what they experience. This important concept should be kept in mind by creating stimulating real-life learning experiences in fields of social interest, fields for which recruitment is desirable.

1.4 Economic, sociocultural, and educational factors

Medical education should be responsive to economic, sociocultural, and educational factors and constraints. These forces represent the parameters that delimit the freedom of the medical education policy maker.

Economic factors determine the resources that are available for capital investment, operational costs, and the absorption of graduates into the professional services, whether in the public or private sector. Sociocultural factors manifest themselves in the demands that society makes for more services of a given type and for more professionals of one kind or another. The educational problems of medical schools are fundamentally the same as those at present confronting other university faculties.

A responsive medical education policy cannot ignore these factors. Medical schools cannot be simply interested bystanders or reactive institutions, responding to pressures; they have to help to shape events in the health care arena and they must be committed to the enlightenment of public opinion if demands of society are unsound. They must interact with the health system as it is, and assist in its gradual and continuous improvement.

In medical education this has meant a much greater involvement of medical schools with the outside world. It has meant a closer relationship with the schools of other health professions, the development of health science centres and faculties of health sciences (or their equivalent). It has meant the beginning of discussions about the desirability and potential of a new, fully mission-oriented "University of Health Sciences". A carefully planned trial may prove such an initiative to be well worth while.

This interaction between the community and the medical school has led to the establishment of cooperative arrangements among departments and among professional schools, cutting across disciplinary lines. Biomedical engineering, cybernetics and computer science, nutrition and agriculture, molecular biology, represent fields where the principles of interdisciplinary research have to be applied.

Finally, there has been an increase in the transactions between medical schools and the institutions that form the health system. In some countries formal agreements have been signed (involving ministries of health, social

security institutes and the university) to undertake coordinated activities within a state or province of the country. The setting in which medical education takes place outside the confines of the teaching hospital provides unusual opportunities for teaching, service, and research. Moreover, the health services gain from this relationship an addition of talent and skills that should facilitate a quick evolution to a much more closely coordinated health delivery system. In other countries, the movement has spread to various university centres and one finds students and teachers of medicine, dentistry, nursing, veterinary science, and engineering working side by side at the community level.

The success of these ventures in improving education and, at the same time, the service institutions depends upon the functional interdependence of all interested contributing parties, each one keeping his own individuality. National planning commissions have an important role to play, serving as nodal points for coordination of effort. But once the action phase is started, faculty members, students, and health workers of various types can and should work side by side without any impingement on each other's domain and prerogatives.

1.5 The influence of socioeconomic development on medical education policy

As was stated earlier, medical school administrators and planners must be responsive to the needs of society. It is therefore necessary to examine how socioeconomic factors influence medical school policy, or in other words, how society can change the medical school. It is apparent that socioeconomic development both *determines* and *limits* medical education.

As regards societies at a relatively low level of socioeconomic development, the Committee gave particular attention to the priority to be accorded to medical education, especially as compared to other projects. It now seems generally recognized that improved health conditions must be part of the general development and that, at the same time, improved socioeconomic development will contribute to better health conditions.

The economic problems of medical education demand that it make use of less costly techniques whenever feasible. It is now recognized that in many instances, as far as health care for the population is concerned, countries might be better served by health personnel other than the physician; for primary care, the use of physicians might become a luxury and possibly even considered a less effective way of delivering it.

While it was assumed that sooner or later every country, perhaps with the exception of very small ones, should have a medical school, for the time being it might still be necessary to train physicians in regional institutions.

It is true that when students from one country are trained in another there are potential disadvantages : first, a possible lack of relevance in the training, and second, the possibility that students might stay in the country in which they are trained.

Furthermore, when new medical schools are established they should *not* necessarily be modelled after established medical schools. They may not require the same programme and structure as institutions that, with their traditional emphasis, are designed to meet the needs of their own respective societies.

With the help of a health economist, the cost-effectiveness of a proposed medical school should be estimated in relation to the needs of the community. Together with this, epidemiological studies of the health profile and needs of the country should be made to establish the type and size of the medical school. It was suggested that the development might take place in steps. The first step would be the establishment of training courses for personnel for primary health care. These courses would not necessarily be for the training of physicians but possibly for other health personnel. The second step would be to provide for training of personnel to deliver secondary care ; and the third step to provide for training of tertiary health care personnel. The training of both secondary and tertiary health care personnel would probably be considerably more expensive than that of those responsible for primary care.

Even if a country has made a decision to prepare physicians, perhaps the other members of the health team should be trained first, so that from the beginning the physicians can be trained as members of a health team which would be oriented specifically towards the health needs of that particular society. Only at the end of a carefully established plan over several years should the classical specialties be added. This implies that for a period of time, regional facilities might have to be used for secondary care and for an even longer period of time for tertiary care, the latter requiring more laboratories, more technical staff, and more specialized clinical facilities. In general it was recommended that new medical schools, whatever their financial resources, should make use of existing community health facilities and hospitals. Medical education should be so organized as to emphasize the importance of primary health care in the social, cultural, and economic settings in which the students will ultimately practise.

In summary, society should influence medical schools so that they direct the training of physicians towards the health needs of the community. Such an approach, which is equally applicable to industrially advanced and to developing nations, would ensure a gradual and well-planned development of educational facilities for physicians, coordinated with the socioeconomic conditions of the area.

2. ROLE OF THE MEDICAL SCHOOL GRADUATE

No attempt is made in this to define precisely the role or roles of the medical school graduate. Instead, it discusses how those planning a new school should go about defining the role or roles in terms specific to the needs of the country that the school will serve.

The first requirement is that each school – its dean and its faculty – should recognize the need to define the goals of the school and the role (or roles) its graduates are to perform – clearly and precisely. Obvious as this advice may seem, it is the failure to follow it that has caused much confusion of purpose in the faculties of both new and established schools. Many possible roles are being fulfilled by medical graduates in developed countries. Each country must select from these potential roles those that are most appropriate to its own socioeconomic state of development and the priority it intends to give to health care.

At least five sources of information are available to assist a new school to define the role it wishes its graduates to play. These sources of information should not be considered as determinants. In other words, having gathered information about the expectations of the graduates themselves, the faculty, and the profession, it is still possible to retain the right and responsibility to make decisions concerning what the role of the graduates should be. The following are the data that should be collected to assist the planners in making decisions about the roles of the graduates; the data would not determine the role *ipso facto*.

(*a*) What are the school's graduates (or in the case of a new school, the graduates of other schools) actually doing in that country?

(*b*) What roles (in specific terms) does the faculty expect the graduate to perform?

(*c*) What roles does the profession expect the graduate to perform?

(*d*) What does society expect the graduates to do (i.e., what are the social expectations in the country in question)?

(*e*) What are the epidemiological and the ecological factors affecting the health care needs of the country?

The experience gained in current research studies shows that data of the first kind, that give a clear picture of what the practising physician in a given society is doing, are likely to be of the greatest value, at least to the extent that the practitioners are engaged in activities designed to contribute to meeting the health needs of the society. It is indeed a major theme of this report that in all countries—even in those with large and expensive medical education systems – many important needs are being

neglected. Thus, it becomes imperative for those responsible for planning to obtain information about the role that the graduate will be expected to play, to plan a programme in the light of that information, and then try to be certain that the graduate's role does indeed correspond to the actual health care needs of society.

It is possible that a new school may define more than one role for its graduates, but it would be wise to begin by defining first those roles that would meet the acute needs of society, adding other roles in time as society's needs become increasingly diverse. Once the primary role of the graduate has been defined, it should be translated into performance and behavioural terms. The curriculum and educational methods can then be developed in such a way as to achieve these aims. The question of whether all graduates should be exposed to the same curriculum without differentiation, or whether there should be a "core curriculum"[1] with "tracking"[2] and early specialization, are matters that must also be decided, but the taking of such decisions is really secondary to the development of a clear definition of the graduate's primary role.

It is important to note that there are alternative ways of developing the curriculum. The selection of any particular method should relate to the needs of the country in question. In one developing country, for example, all graduates might at the outset be given a common training as primary care physicians and then, later, more programmes, built around a common core but encompassing some of the other specialties, might be added.

One of the interesting developments of the last two decades is the utilization of the systems analysis approach[3] in the field of medical education. In order to determine what a core curriculum might be, for example, a systems approach would begin with a task analysis. When all the services to be provided by physicians in the delivery of health care have been listed, they could be translated into a list of tasks to be performed. Such a list might then be analysed to determine those tasks that are common to all physicians and thus arrive at a description of a core curriculum. Finally,

[1] For the purpose of these discussions, core curriculum implies those courses of study and learning experiences common to the preparation of all physicians, regardless of their ultimate respective specialities.

[2] For the purpose of these discussions, tracking was understood as describing that process in a curriculum that allows the student to select a specialty (or special interest) at an earlier point in time and to study those aspects of the total medical education curriculum that will best prepare him for that special role.

[3] E. S. Quade has defined systems analysis as "any formal analysis whose purpose is to suggest a course of action by systematically examining the objectives, costs, effectiveness, and risks of alternative policies or strategies... It is an approach to or way of looking at complex probelms of choice under uncertainty."

the task analysis should be related to the above discussion of role definition and its validity would be enhanced if it were based on the five sources of data mentioned above particularly on a study of the roles that the graduate actually performs.

Clearly, the current academic organization of medical schools into traditional departments often impedes the development of an educational pattern suited to actual health care needs. Alternative systems of academic organization should be considered, such as the organization of departments on interdisciplinary lines related to the major health needs of the country. Any new system of academic organization must of course take into account what will happen to the graduate when the health needs of his country change. If his education is designed exclusively for present needs, he may not be able to function effectively when those needs change drastically.

The following points were made with reference to the role of the medical school graduate :

(1) In recent years, more and more students have demanded definitions of objectives of their medical education, setting out specifically what roles they are being prepared for.

(2) Once a role is defined, the school authorities must make a conscious and systematic effort to direct its curriculum and its faculty to that end. Defining the role is just the beginning and not an end in itself. A new school will be better assured of reaching its goal if it appoints only faculty members committed to that goal.

(3) If it is decided to emphasize the role of the physician in providing primary care, the medical school should provide specific training for the defined functions as it would for any specialty. At present, education and training for primary care are too often a disorganized collection of bits and pieces of the specialties rather than an organized educational programme directed to clearly defined functions and tasks.

(4) Whatever role is defined for a particular school, the graduate must be capable of performing certain specific tasks in the country served by the school, i.e., his education and training must be functional. It is unrealistic and a waste of time and money to prepare graduates for functions that cannot be performed because of a lack of the necessary equipment or of other material or human resources.

The definition of the role its graduates are to play is perhaps the most important task a new school must undertake. It is a question universal in medical education, in developed as well as developing countries. The developing countries have an exciting challenge here ; they can show the way for more developed countries that have the same problem, complicated

by a surfeit of resources and established traditions that impede the equilibration of education and health care needs. This is one sphere in which the developing country must examine what has been done but seek its own solutions; these solutions must then be part of a long-term plan that will aim ultimately at providing all levels of care and all levels of medical education in the developing country.

3. FORMULATION OF MEDICAL SCHOOL POLICY

3.1 National health policy, medical education policy, and socioeconomic determinants

In most countries, at least three levels of medical education policy making exist: national, regional, and institutional. That is, within any given country certain policies are made governing medical education throughout. Where regional differences permit, these are reflected in decision making concerning medical education. Finally, of course, each medical school—within the limits and constraints of that country and society—sets policy and makes decisions.

Good communication among the three levels—particularly between each pair of contiguous levels—is essential, and policy at a national level must find its expression in the work of each medical school; regional policy, also, should be implemented in each medical school; medical school policy, itself, should not be in contradiction with national policy. In this context, it is once again important to emphasize that the activities of medical schools should respond continually to national and community needs and be consistent with the socioeconomic status and resources of the country.

Rapidly changing patterns of health problems in many societies require special care on the part of those planning medical education. As health problems change, medical education must be adapted in order to continue to prepare those who will meet society's needs. Then, too, however sophisticated the medicine taught, achieving uniformity in the education of graduates (for its own sake, or perhaps in answer to other pressures) will serve no useful purpose if, at the same time, graduates are not provided with an understanding of the health problems of the society in which they will work. Mechanisms of communication must therefore be sought that will both permit control to be exerted and will ensure the effective provision of health data to influence policy-making at all levels.

If a national health plan already exists, it is necessary to consider how the policies of medical schools can be influenced to reflect that plan. If

no such plan exists, ways must be found for the country to ensure that the medical schools produce graduate students who are able to meet local needs.

An attempt to rationalize the structure of the educational system might begin with a review of the medical needs and the health manpower available in that country. The results of such a study might be translated into policy through the actions of some kind of health manpower planning commission.

While such a commission should be representative of a number of different areas (e.g., health, education, economic planning, medicine, other health professions, research bodies) it must also be small enough to be capable of effective action. Furthermore, the success it achieves will be dependent on the respect accorded to it both within the health professions and by the rest of society, particularly the consumer. There are a number of hazards. Obviously, political pressures might inhibit the activities of such a commission. Secondly, where data are unavailable or inaccurate, it will be difficult for the commission to carry out its functions. Certainly, the translation of data into policies is beset with difficulties. Finally, the commission might fail through inability to contact and influence medical schools. In short, a commission of this kind, although essential, might be able to do little more than influence national policy and rarely have any effect on the policies of new or changing schools.

Considering the planning processes within a school, it is apparent that the work of the planning group within the school would greatly benefit from a close liaison with the next higher level of planning. For example, planning commission representatives, working with the institutional planning group, might ensure a good liaison and communication.

Students are an important and often untapped resource for planning. There are three reasons for involving them in the planning process. First, they are already consumers and will soon be providers of medical care and their participation will therefore facilitate their learning. Secondly, their intensive involvement in medical education will make them active participants with a special "inside" view of medical education. Finally, it is now accepted in education that an imposed curriculum is often less effective than one devised in consultation with the student body.

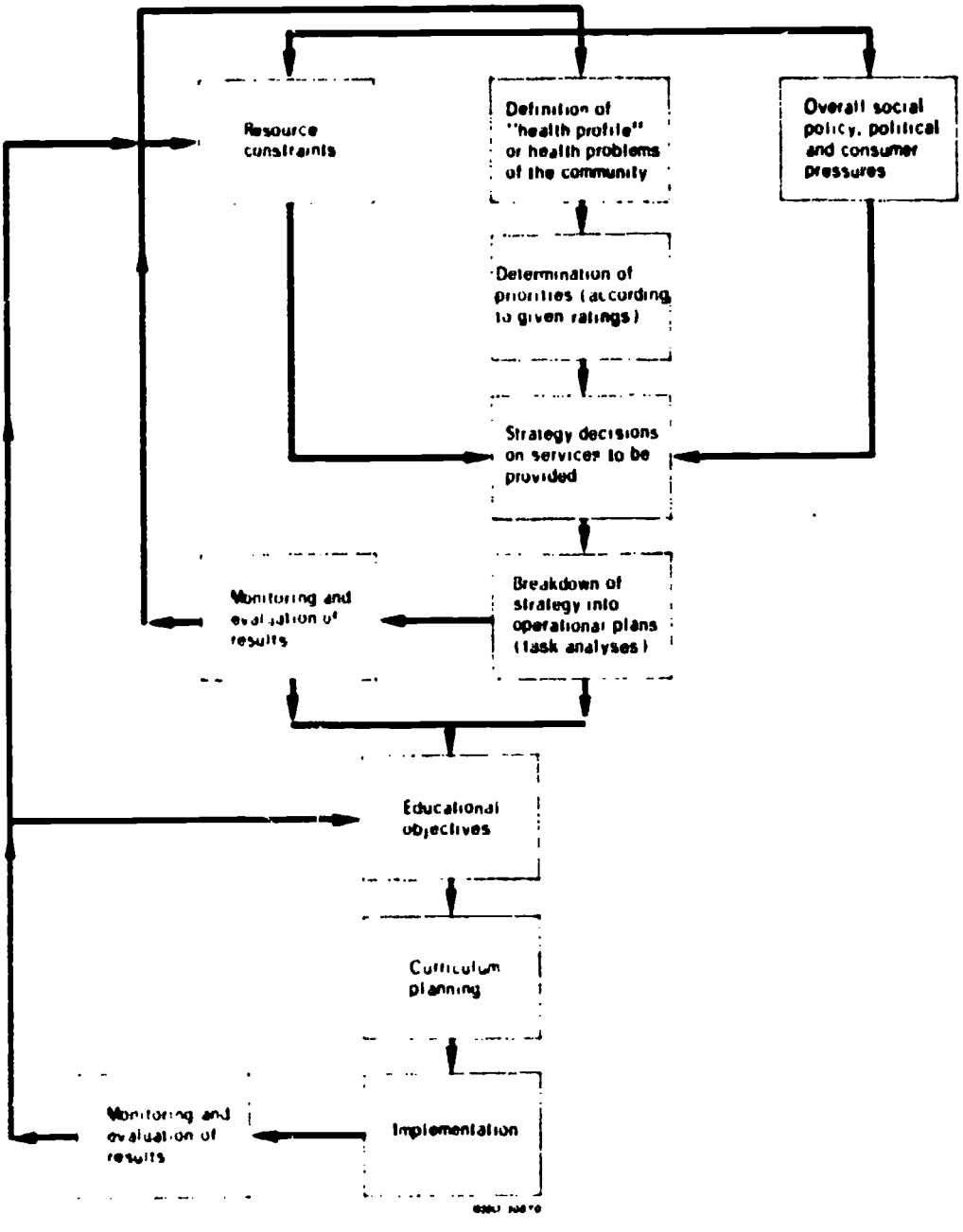
Major impediments to rational planning include:

(1) lack of accurate data about health and the health manpower situation,

(2) lack of proper display of such data when available,

(3) lack of means to assess health care priorities,

(4) lack of a conceptual framework from which to derive the relationship between health problems and what is taught to students.



The medical school should recognize its responsibility to correct these deficiencies by (1) collecting data, (2) disseminating the data, (3) devising means to assess health care priorities, and (4) developing a conceptual framework.

One simple conceptual framework for the planning of health manpower education involves the following steps: (1) classical situation analysis (health problems of the society); (2) assessment of priorities; (3) a decision-making process in which resource constraints are related to overall social and health policies; and (4) the translation of priorities into optimal services.

Having decided upon the services and manpower necessary, a series of task analyses are undertaken as a preliminary to defining the educational objectives around which the educational programme is designed.

Such a conceptual framework has many obvious limitations (for example, it cannot easily be translated into a "systems" model), but this is at least an approach in which medical education can influence health patterns. Monitoring and evaluation are clearly needed at each step.

Since the processes described are constantly changing, it follows that an occasional or even a periodic review may not serve to keep medical education constantly in line with current needs. This objective can only be served by a continuing and "built-in" review system. Of the several mechanisms possible and analogous to those recommended by WHO for continuous review at the national level departments of medical education are the most common. Whatever mechanism is used it will clearly become an instrument for curriculum change as well as for review.

3.2 Medical school policy and academic considerations

Universities today, and the medical schools that are part of them, have a broad social mandate. It is widely recognized that their mission encompasses education, research, and service to society. The striving for excellence stemming from the pursuit of high academic standards is normally exerted through the research endeavours of faculty members and their students who are working toward advanced degrees. This is a strong force in the development of medical schools and stimulates the professional and scientific growth of faculty members.

Some critics of the university in countries in an early stage of development may decry the use of limited resources in research, instead of in educational or service activities. This is not an either/or proposition, but a question of giving proper weight to each of the three major activities of the university according to relative priorities at a given point in time. Priorities should change as the needs of the country change.

Achieving a proper balance in the distribution of funds between research and other medical school endeavours is one of the tasks that should be part of the formulation of medical school policy. Whatever funds are finally assigned for research and academic pursuits, the important consideration is that their utilization be relevant to the needs of society.

Medical school research ought to be related to the health needs of the country; it is important to instil in the faculty the idea that academic pursuits do not lose quality through being problem oriented addressed to practical community problems. Problem-oriented research dealing with the immediate health problems of communicable diseases, environment, or nutrition contains as much of a challenge to a medical school as research in any other field. Problem-oriented research calls for interdisciplinary collaboration and can thus help to combat departmental isolation.

In addition, such research may be more productive than isolated efforts along disciplinary lines. The results obtained by several mission-oriented research institutes in agriculture show what may be obtained on a short-term basis by concentrating a "critical mass" of investigators from several different disciplines to seek solutions to problems of great social interest.

Medical school research related to community health problems needs the contribution of epidemiologists, clinicians, and social scientists as much as that of research workers in the traditional basic sciences. It must be stressed that interdisciplinary research does not have to be expensive to be effective or even to be of "high quality". Considerable savings can be effected by sharing the utilization of equipment.

Expensive equipment should not sit idle on the mistaken view that it "belongs" to a certain department. A medical school should establish an internal means to ensure that all equipment is utilized to the maximum benefit of all interested parties.

In brief, while academic factors should always be considered and given proper weight in policy formulation, research endeavours should be stimulated in relation to significant community health problems and in the light of the resources available for biomedical research. Such biomedical research is ultimately aimed at the solution of significant health problems; but research in the basic sciences tends to be further removed from immediate problems and thus probably more appropriately conducted in schools whose societies can best afford such endeavours. The establishment of research priorities, therefore, should be the result of careful consideration of the importance and severity of health problems on the one hand and the amount and availability of resources and support on the other.

However, it is apparent that research activities have benefits beyond just the immediate application of their findings. Such activities contribute to faculty development; furthermore, they serve to stimulate scientific thinking among students who become involved. Obviously a scientific attitude is important in the preparation of students for future practice. Without a critical mind and without a continuing search for new knowledge, a graduate may find himself unable to adapt to new systems of health care delivery or to new practices or concepts. As a result, he will no longer be

able to make the maximum contribution to meeting the health care needs of his society.

3.3 Community involvement in medical school policy

The community should be involved in a general way in the cooperative determination of medical school policy, but should not be directly concerned in decision making on technical matters. Every way must be sought to bring the acute health needs of the community into the full glare of public opinion and, if necessary, to engender criticism.

It is important to identify leaders of thought and those who are in a position to mobilize opinion and action. The community must be satisfied that it is getting value for its investment and must be able to indicate in a general way to what extent it feels policy should be modified to meet national needs. "Involvement" does not imply "control", as presence of the latter carries with it inherent dangers of stifling effective organization and implementation. It is thus important to strike a functional balance between understanding and overall control.

It is presumed that in its broad principles medical school policy conforms with the overall social policy, and the involvement of the community ensures that these principles are adhered to as far as possible.

4. RECOMMENDED GUIDELINES FOR MEDICAL EDUCATION

Considering that the education of physicians and other health workers should be specifically directed towards meeting the major health needs of the society to be served, the following guidelines are given to assist those who are responsible for decision making and policy planning, whether for a new medical school, for a change in direction of an existing medical school, or for simply determining whether the policies and objectives of the existing medical school meet the health needs of the community.

1. The determination of major health problems and needs should be based on (*a*) the health profile of the society to be served and priorities arrived at on the basis of prevalence, severity, and controlability of the health problems, and (*b*) the health problems and needs as perceived by the society itself.

2. An optimum choice of the services to be provided should be made by the appropriate authorities, taking due note of: (*a*) the framework of

the overall social policy of the country, (*b*) the resource constraints, and (*c*) the priorities assigned to health problems and needs.

3 The types and extent of services to be provided should be used to determine the health manpower policy, i.e., the definition of types and numbers of health personnel needed to deliver and evaluate the identified services and the functional roles they would have to fill. The formulation of a policy for medical education should not proceed unless these data are available, or at least an approximation to them.

4 Decisions about present and future medical school policy should be made on the basis of consultations with, and data supplied by, appropriate representatives of the university, the medical school, the practising professions, the ministries of health, education, finance and planning (or their equivalents), and the society to be served. This is best achieved by the formation at the outset of a planning committee composed of such representatives, and measures should also be taken to ensure continuing participation of these representatives throughout the life of a new school or an existing school.

5 Through the process of task analysis, job descriptions [1] for those who provide these services (designed to meet health needs) are next developed.

6. On the basis of these job descriptions, statements of the educational objectives should be elaborated.

7. Most countries will ultimately aim for a full spectrum of health services, from primary to tertiary care, and will wish to train their own manpower for each level. Practically, however, a new school is well advised to approach this goal in a stepwise fashion, starting with the most needed services and manpower, temporarily drawing on external sources for additional support, and then adding other programmes as conditions permit. Development of such a plan according to a specified time schedule is essential.

8 A critical factor in meeting major health needs is a sufficient supply of appropriately trained manpower for a variety of tasks; hence, it is essential that future physicians be directed into needed health careers by: (*a*) selection, counselling, and career guidance; (*b*) modification of faculty attitudes and behaviour; (*c*) provision of economic incentives; (*d*) discouragement from entrance into overcrowded specialties; and (*e*) motivation by relevant learning experiences.

[1] For the purpose of these discussions, the job description is synonymous with the role definition of the medical school graduates.

9 From the very outset the planning group must consider the medical school to be a social and academic resource to assist the community in which it is located

10. Since a major commitment of a new school is congruence between the role its graduates play and the needs of society, it is essential that the curriculum include instruction in the appropriate behavioural and social sciences in addition to the more traditional " basic " sciences.

11 Staff for a new medical school should be recruited *only after* the definition of the school's goals which would permit selection of those committed to the policies.

12 When the preparation of physicians destined to deliver primary care is a goal of the school, it is essential to treat this field as a specialty requiring a specific educational programme and to grant the physician similar academic status and privileges to those enjoyed by other specialists.

13 All medical schools, especially those that concentrate on the preparation of physicians for primary care, should provide learning experiences in settings that approximate closely to those in which the physicians will ultimately practise: e.g., community health centres, rural health centres, maternal and child health centres.

The Committee's terms of reference were to prepare guidelines for (1) the identification of factors that should influence medical education policy, (2) definition of the role of the medical school graduate, and (3) formulation of medical school policy. It was clear to the Committee that discussion of all aspects of medical education, particularly in a worldwide context, made this assignment most difficult. Thus, many of the statements made in this report may appear to have more relevance or applicability to developing countries rather than to the developed ones, or to new medical schools rather than to those long established. It was the intention of the Committee, however, that all the statements should be considered pertinent to and applicable in all countries and schools.

In addition to the guidelines recommended above, it is desirable that the following important aspects of medical education should be borne in mind when formulating educational policies.

(a) *Admission of students to medical school.* Serious questions are being raised in many countries concerning the relative value of an " open " admission policy. Should a school admit all who apply and thus risk producing an excessive number of highly trained physicians who will subsequently be occupied in tasks possibly far below their capabilities? Or should a school admit all who apply and then graduate only the number needed in the society, thus avoiding the problem of excessive supply but

at the same time disappointing large numbers of students? Or, finally, should a school admit only the required number from the best of those applying, thus avoiding both the over-supply problem and the possible delayed disappointment of large numbers of students, but on the other hand denying admission to potentially qualified students who might easily do as well as or even better than some of those accepted? The problem is universal, the solutions may have to be found at national, regional or even in some instances school level. The important consideration is that decisions about admission policy should be the result of careful and thoughtful application of the same kind of rational processes described in this report. Certainly the policy governing admissions to medical school should derive from such factors as the health needs of the society, the health manpower situation, and the resources—both human and material—available for medical education and education for other health professions.

(b) *Evaluation of new educational policy.* Whenever a new educational policy is introduced, changes can be anticipated in programme, administration, student performance, teaching, or in any combination of these. However difficult it may be, every attempt must be made to provide evaluative data concerning the impact of the policy change. Therefore, it is essential to assess the total situation prior to policy implementation so that evaluation can take place.

(c) *In-service training of staff.* Whenever a new educational policy is introduced, appropriate in-service education measures should be taken to assist the staff so that they are able to implement the new policy. While this advice might appear self-evident, it is unsettling to note the number of policy changes that are introduced with no provision for staff education or preparation. This often happens when the change is regarded as "not very great" and therefore not worthy of special steps. Or it occurs when budgetary constraints are considered too restrictive to permit appropriate steps to be taken. Whatever the causes, in-service training is not always accorded sufficient importance.

(d) *Continuing education of the physician.* The foregoing discussions on basic medical education are also highly relevant to the continuing education of the graduate or qualified physician. Medical education has become a lifetime study and the practising physician owes it to society to become technically competent in his field and to remain so. He should also review constantly the health needs of the community he serves and respond vigorously to any changes in those needs.

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